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Economics Department
McGraw-Hill Publications Company
1221 Avenue of the Americas
New York, New York 10020

U.S. BUSINESS OUTLOOK LONG-TERM

August, 1983

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U.S. BUSINESS OUTLOOK LONG-TERM

At last, the U.S. is emerging from three years of economic stagnation. The bonus point is that the specter of ever-escalating oil prices seems to have retreated--at least for the time being. Thus American business has reason to hope for a period of solid, non-inflationary expansion.

Besides hoping for a cyclical rebound from three bad years, business may also be expecting a strong boost in coming years from technological change. The computer revolution, after all, is still relatively young, and is still proceeding rapidly. Other technologies--such as robotics, biotechnology, and fiber optics--are in earlier states of commercial development; hence they may reinforce expectations that the economy will be getting a technological shot in the arm.

However, other facts known today that will affect economic growth tomorrow are less encouraging. Foremost is the monstrous U.S. federal budget deficit that has reached proportions never before experienced in this country during peacetime. Since there is no historical precedent on which to anchor confident assertions, analysis of such deficits necessarily requires some hunches. But at a minimum, it seems unlikely that monstrous deficits will do anything to foster economic growth.

Another drag on the economy in the next ten years will come from a slowdown in growth of the labor force. The importance of labor force growth becomes evident when the formula for overall economic growth is stripped down to its basic version:

Economic Growth = % Change in Productivity + % Change in Labor

If productivity doesn't change and employment declines, then economic growth declines.

But perhaps an unwritten law of economics should be that nothing is wholly what it seems. Thus while the economy is certainly recovering, the recovery might be spurring new private credit demands that will bump heads with the government's needs to finance the budget deficit. Rising interest rates would then crimp the recession and contribute further to the deficit.

On the other hand, a strong sustained recovery could cut into the deficits, making them easier to finance, thus easing pressure on the financial markets. At the same time, if the recovery remains robust, energy demand could quicken to the point where an emboldened OPEC once again slides into the driver's seat.

As for technology, it may be unsettling to recall that the computer boom of the 1970s coincided with the slowdown--even a decline in some years--in U.S. productivity. And as for slower labor force growth, such a slowdown may end up boosting productivity by stimulating increased capital investment.

This report can hardly provide fail-safe solutions to any of these conundrums of long-term economic growth. But the issues will be

explored, put into perspective, and judgments will be ventured about their impact on the U.S. economy in the next ten years.

More specifically, the report will look at:

- The current recovery and its interaction with energy demand, inflation, and the federal deficit.
- Technology and its potential impact on growth.
- Labor force developments.
- The changing mix of U.S. capital investment, and its relationship with other elements of growth.

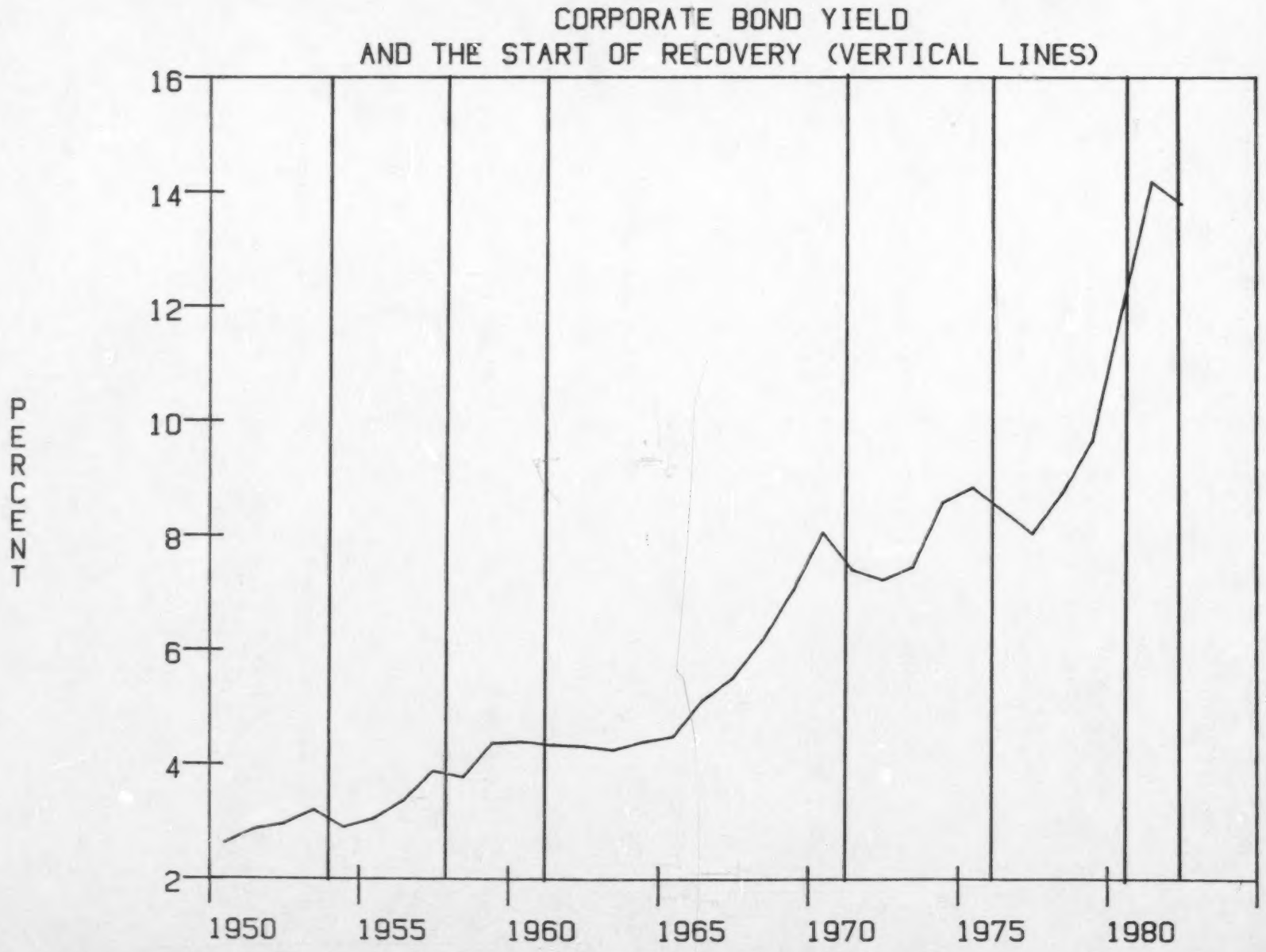
The Recovery Should Not Ignite Oil-Fired Inflation

The good news of late from the economic front is that the recovery is here, and it looks strong enough to last for a while. It's also good news that, at least in the recovery's early stage, inflation has remained down in the 4%-5% range. The bad news is that interest rates are at record levels for the start of a recovery, as shown in Figure 1.

How the recovery, inflation, and interest rates sort themselves out during the next year will importantly determine the path of the economy during the next decade. If the recovery makes it through 1984 without boosting inflation and interest rates, the U.S. could be in for a long period of sustained prosperity. If, however, the recovery quickly fuels private credit demands while the government fails to reduce its own money needs, interest rates would spurt, undermining the strength of economic expansion.

The key, then, to keeping the recovery on track probably lies with interest rates. For if nothing else, the three-year stagnation

FIGURE 1


CORPORATE BOND YIELD
AND THE START OF RECOVERY (VERTICAL LINES)
PERCENT
16
14
12
10
8
6
4
2
1950
1955
1960
1965
1970
1975
1980

starting at the end of 1979 created lots of pent-up demand for everything from houses and cars to jet travel and apparel. At the same time, the stagnation also created lots of spare production capacity--the industrial operating rate slumped from 83% at the end of 1979 to 70% three years later. During the same time, the unemployment rate surged from 6% to nearly 11%.

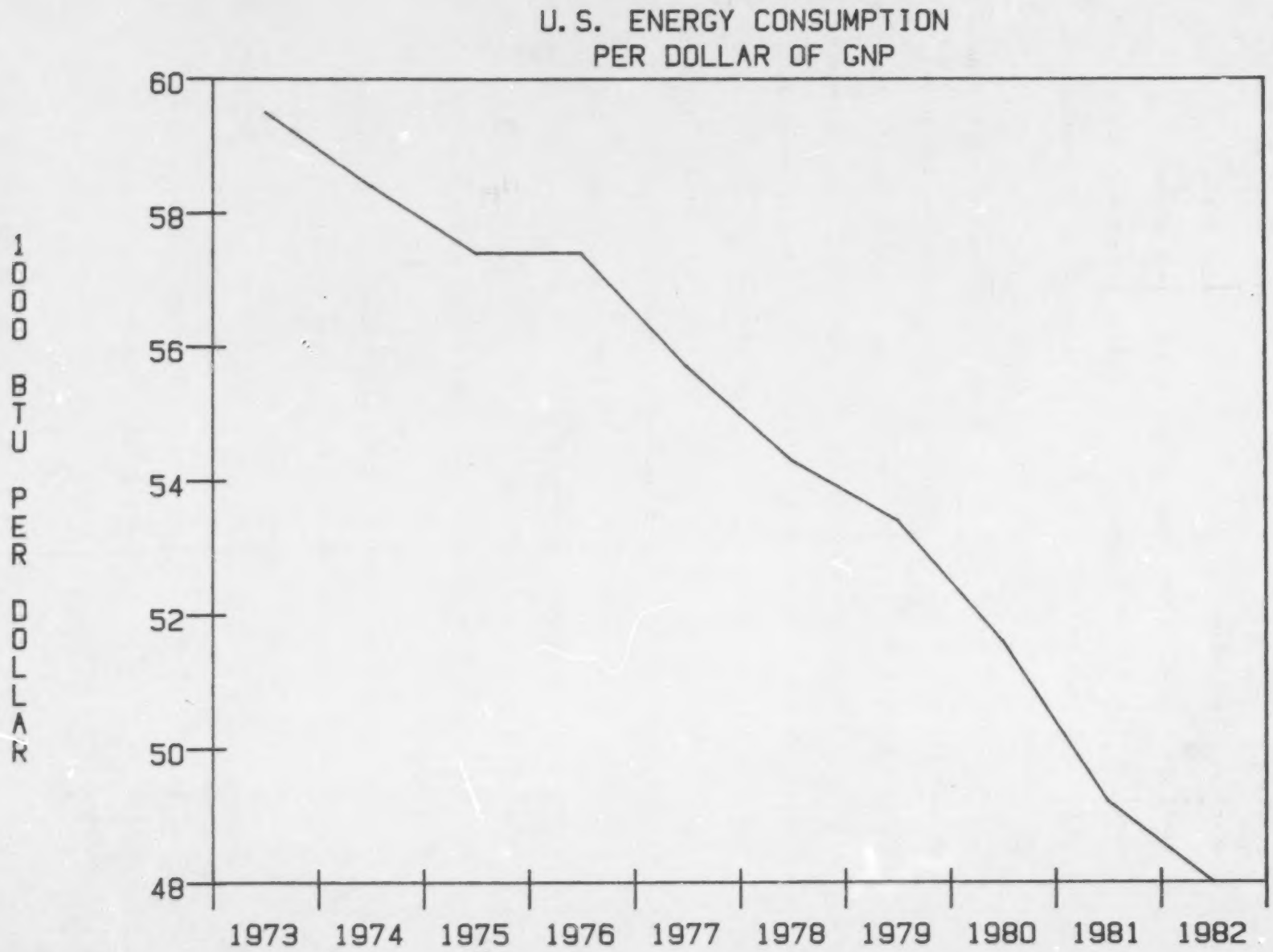
In short, there's nothing on the demand side or the supply side to hold back the recovery. Moreover, because of the huge amount of unused human and factory capacity waiting to be tapped, there's little reason for inflation to escalate anytime soon. Which means the Federal Reserve Board should have room to expand the money supply gradually without resort to inflation-fighting tightening.

So much so good. But what about the main inflation instigator of the past decade--oil? A rapid recovery that sharply boosts oil consumption could conceivably allow OPEC once again to impose taxation without representation on American business and consumers. Barring a political upheaval in the Mideast (always a possibility), oil price increases are expected to remain modest during the forecast period. The reasons:

1) The U.S. has taken major strides in energy efficiency. Since 1973, before Oil Shock I, American business and consumers have slashed by nearly 20% the amount of energy needed to produce a dollar of gross national product. (See Figure 2.)

2) Electric utilities have cut sharply their dependence on oil. In 1973, oil-fired plants produced 314.3 million kilowatt-hours--18% of total electric power. By 1982, oil-generated electric power output had

FIGURE 2


U.S. ENERGY CONSUMPTION
PER DOLLAR OF GNP
1000 BTU PER DOLLAR
60
58
56
54
52
50
48
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982

plummeted more than 50% to account for just 6.5% of electricity produced by U.S. utilities.

3) Oil companies have invested vast sums to explore for and produce oil and natural gas in the U.S. From 1973 to 1982, oil company drilling outlays totaled about $160 billion. Because easy-to-get oil in the U.S. had already been tapped, this large investment necessarily went to finding high-cost oil. Thus the big dollar outlay was not matched by a big increase in oil production. Nonetheless, this investment did halt the drop in crude oil production that developed in the mid-1970s.

4) Conservation and fuel switching have greatly reduced U.S. dependence on OPEC oil. From 1973 to 1977 the U.S. dragged its feet on cutting imported oil consumption. But since 1977--due to Oil Shock II--the U.S. has cut OPEC oil imports from six to two million barrels a day.

Undoubtedly, part of the reduction in oil consumption was due to the severe 1981-82 recession. Nonetheless, even with oil prices softening, it's not likely that oil use will revert to patterns of the bad old days. Investments by business in energy-efficient plant and equipment and by homeowners in insulation and heat pumps are not going to be dismantled. The government is not going to shift auto mileage regulation into reverse. Utilities are not going to reconvert coal-fired units to oil.

Besides maintaining previous investments in energy conservation, people will still feel plenty of incentive to be careful with energy. For even with the recent drop in prices, from 1973 to 1982 the price of crude exploded by 666%. Prices in general increased 96%. The point

is, oil is still a potential budget buster for the home or business that doesn't conserve.

True enough, lower oil prices may cause conservation efforts to slacken--witness the drove of new big cars taking to the roads. Moreover, as the economy grows it will require more energy. But these are reasons for the price of oil to rise somewhat faster than prices in general. They are not reasons that lead to an Oil Shock III.

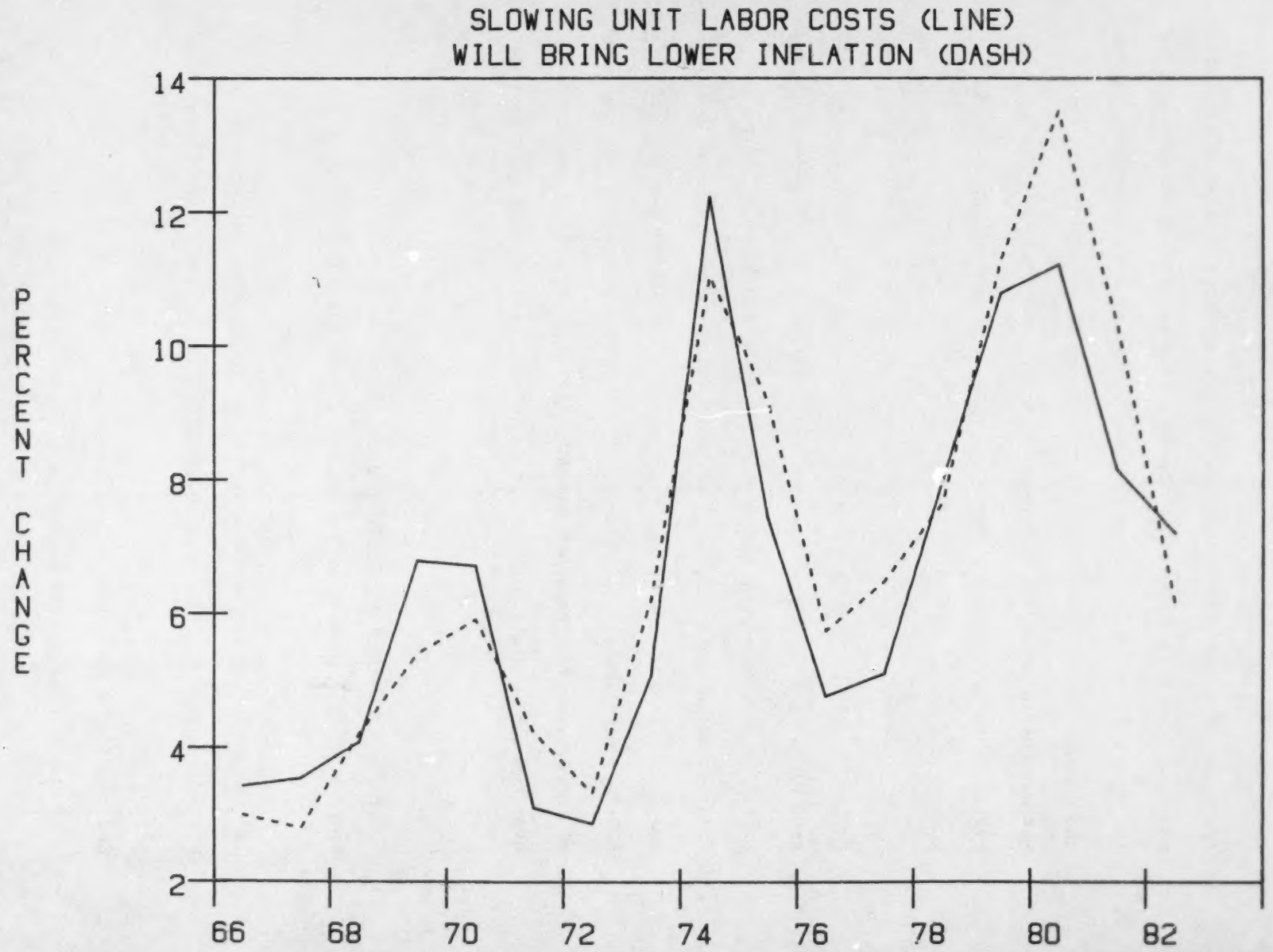
Which is not to rule out Oil Shock III altogether. A revolution in Saudi Arabia, for example, would not leave the Rotterdam spot market unruffled. On the basis of economics alone, however, oil prices should not subvert America's chances for prosperity in the next ten years. Also, aside from supply and demand factors, consider the boon that the strong dollar has been to OPEC. Since oil is paid for in dollars, OPEC has been enjoying a quiet price increase levied on everyone except the U.S. Persistently high U.S. interest rates (see next section) will likely keep the dollar strong, which takes away one more reason for OPEC to raise prices.

Thus a key assumption embodied in the forecasts at the back of this report is that oil prices climb gradually, not much faster than prices on average.

A further assumption keyed in part to the oil price assumption is that overall inflation remains bottled up for another year, and then creeps ahead before flattening out in the 6%-7% range.

Besides oil keeping the heat off prices, wages will also play a crucial moderating role. As wage gains have decelerated in the past year, the cost of producing goods has slowed significantly, hence pushing down inflation. (See Figure 3.) With unemployment high,

FIGURE 3


SLOWING UNIT LABOR COSTS (LINE)
WILL BRING LOWER INFLATION (DASH)
PERCENT CHANGE
14
12
10
8
6
4
2
66
68
70
72
74
76
78
80
82

especially in big-wage basic industries, it's unlikely that wages will spurt anytime soon. And until factory output grows another 10% or so, manufacturers will have enough capacity to meet growing demand while at the same time enjoying a drop in fixed costs per unit of output. So as the economy grows, companies will be able to boost profit margins without raising prices. Knowing that other companies have capacity available to meet customer demand is also an incentive for firms to keep prices down.

A year or so from now, continued economic expansion could be putting upward pressure on prices. But the Fed under Paul Volcker will probably keep a steely eye on the inflation rate, and if anything, will sacrifice some growth to keep inflation from escalating rapidly. Nonetheless, despite Volcker's distaste even for 5% inflation, history suggests that a mature economy with significant social welfare and military commitments cannot suppress inflation altogether. In the case of the U.S., recent evidence suggests that a 5% inflation performance over the long run would be very good indeed, probably too good to hope for.

The Recovery Could Ignite Interest Rates

With oil lighting no inflationary conflagration in the coming years, the economy in the 1980s is expected to look much different than in the 1970s. Unfortunately, that doesn't mean this decade's record will be any better. For even if inflation is no longer the threat that it was, the 1980s bring new major problems--namely massive federal deficits and their impact on interest rates.

Forgetting for the moment about what causes high interest rates,

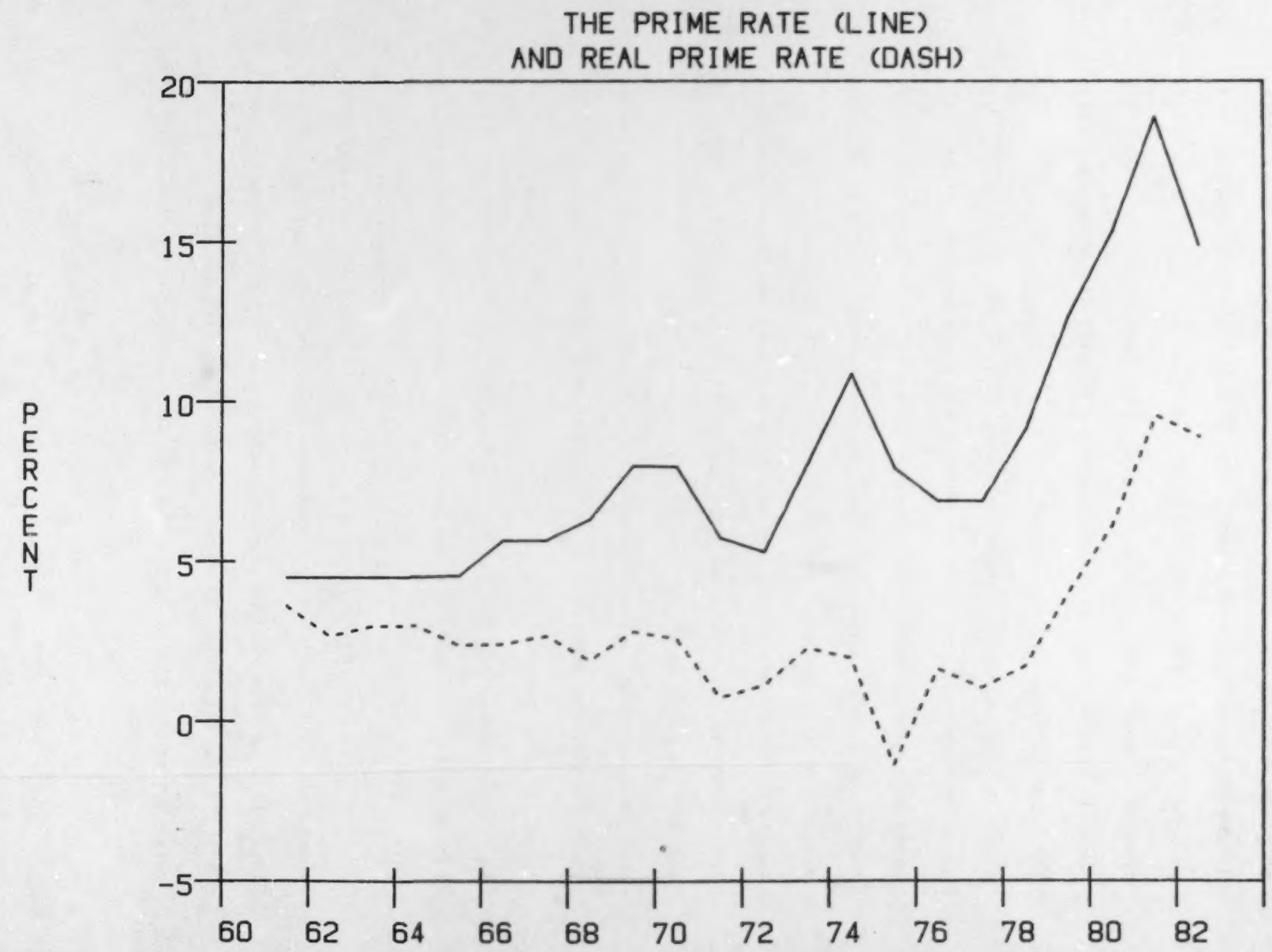
it is merely noted initially that although rates reached record peaks in the 1970s, in most years rates were within historical experience--especially when inflation is subtracted from market rates to translate them into "real" rates. This interest rate normalcy of the 1970s is shown in Figure 4, which also shows how violently the 1980s have thus far departed from such normalcy.

It's no coincidence therefore that 1980-82 was marked--pockmarked, as it were--by both extraordinarily high interest rates and by no growth. High interest rates, after all, crunch major industries such as autos, housing, appliances, and furniture. Also, when the cost of money is astronomical and price increases are terrestrial, there's strong disincentive for business to buy new plant and equipment. Not least of all, high interest rates mean a strong dollar that makes life difficult for U.S. exporters.

All would agree, therefore, that high interest rates contribute to recession. By contrast, many disagree on the future course of interest rates because they are not fully agreed on what causes rates to rise or fall. And even if there is general agreement on general causes, there is always disagreement on the relative importance of a particular cause at a particular time.

At this particular time, the interest rate optimists (those who think rates will decline) lay stress on the relatively low rate of inflation, on weak private credit demands, and on the observation that deficits are not linked to high interest rates. In any case, they say, the recovery will help close the gaping hole in the federal budget.

FIGURE 4


THE PRIME RATE (LINE)
AND REAL PRIME RATE (DASH)
PERCENT
20
15
10
5
0
-5
60
62
64
66
68
70
72
74
76
78
80
82

Interest rate pessimists point to the gaping hole and say it has to be filled in one of two ways, or some combination of the two: 1) The Treasury will have to borrow record sums, thus crowding out private investment. 2) The Federal Reserve will have to buy record amounts of Treasury debt, in the process pumping up the money supply and spurring inflation. Neither choice nor any combination of choices is attractive, assert the pessimists. Both keep rates up and generate negative side effects as well.

The interest rate assumptions in this report come down on the side of the pessimists, in that interest rates--both market and "real"--are not expected to return to pre-1974 levels during the forecast horizon. Here are the reasons:

1) While in theory, interest rates should fall with inflation, the theory has not worked well for over a year now. The inflation rate was halved between the fourth quarter of 1981 and mid-1983. If corporate bond rates had fallen to the same degree, they would now be 7%-8% instead of 12%-13%.

2) Undoubtedly, private credit demands at present are weak. In 1979, the last year of the last economic expansion, U.S. businesses and households raised $323 billion in credit markets. In the first quarter of 1983, these sectors raised a third less--only $216 billion at an annual rate. That of course left plenty of leeway for the federal government to boost its borrowing 400% to $189 billion.

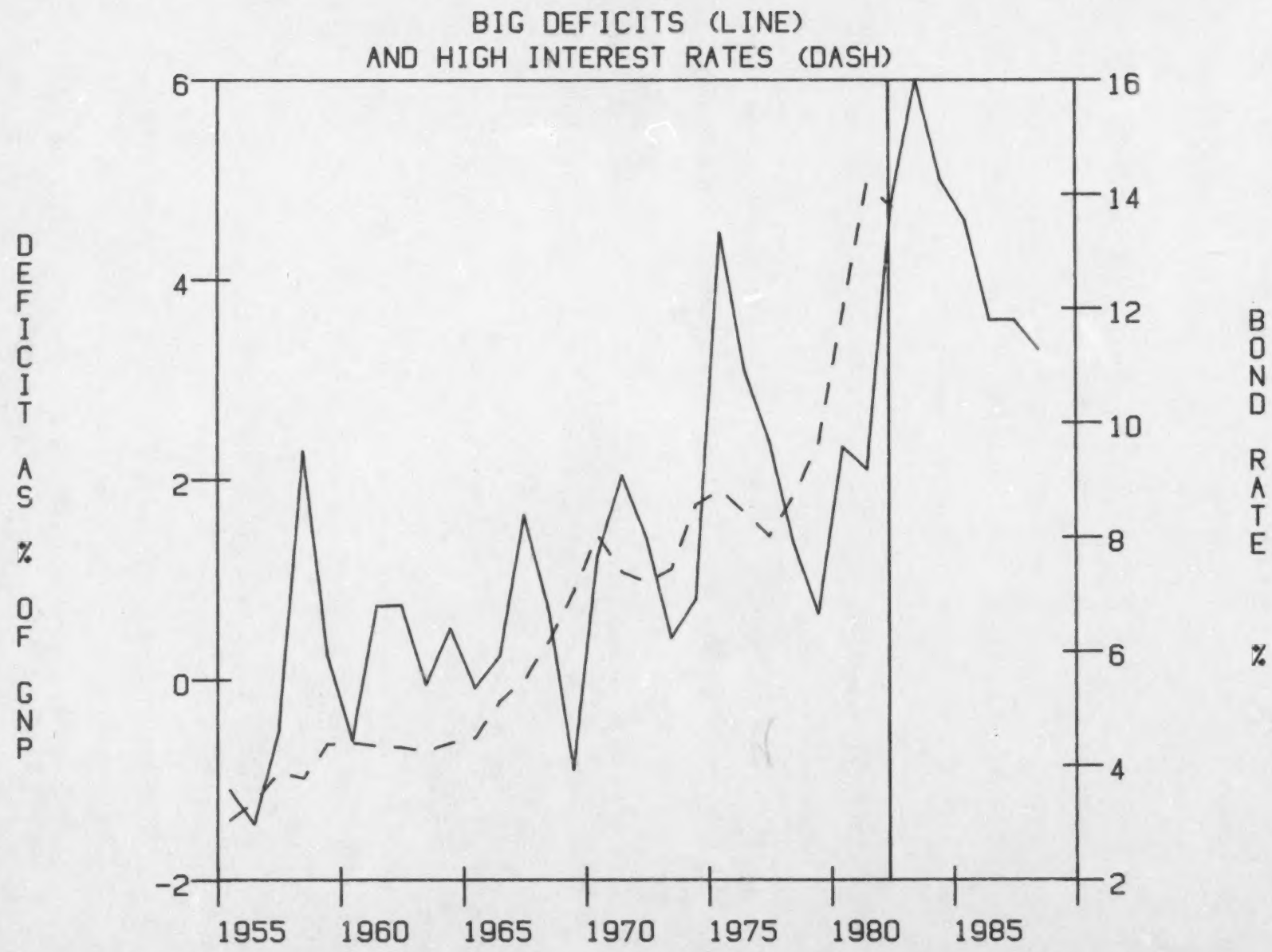
The private sector slashed its borrowing because of the recession. Now the recession is over and people are buying houses and cars and companies are buying inventories and capital equipment, which means they will be looking to borrow. A collision with the U.S.

Treasury is in the making. The flip side, optimists argue, is that recovery will increase government tax revenues and reduce government spending on unemployment and welfare. Which is true. But it's also true that due to the new tax structure in combination with surging military and health-care expenditures, the Treasury will still be borrowing record sums for an extended period of time.

Even assuming that President Reagan gets all the spending cuts and contingency tax increases he wants, and even assuming that the economy rolls ahead at a perky pace (4% a year), federal deficits would remain well over $100 billion per year through 1988, according to the non-partisan Congressional Budget Office (CBO). The so-called "structural" budget, that is, seems alive and all too well and living in Washington, and it won't go away quietly in the face of economic growth.

To put projected deficits into perspective, consider that in 1988 the red ink would still be 3.3% of gross national product--far higher than the average of about 1% in the 1960s and 1970s. (See Figure 5, which shows CBO estimates through 1988.) More disturbing than the size of the deficit in any one year is the long string of huge projected deficits that start at 6.1% of GNP in 1983 and then take five years to get down to what is still a high level. With the government throwing its weight around the financial markets for the next five years, something has to give. Either the private sector won't get all the financial resources it wants, or part of the private sector will get resources but at a premium price. The sector most likely to give is housing--at a time when the demographic demand for housing will be at a peak.

FIGURE 5


BIG DEFICITS (LINE)
AND HIGH INTEREST RATES (DASH)
DEFICIT AS % OF GNP
BOND RATE %
6
4
2
0
-2
16
14
12
10
8
6
4
2
1955
1960
1965
1970
1975
1980
1985

3) All this stuff about deficits and interest rates is voodoo economics, say the pessimists. Look at the record--big deficits do not cause high interest rates.

The record is presented in Figure 5, where in fact it appears the optimists are correct. For example, deficits surged in 1971 and 1975, yet rates fell in those years. However, observe that in the past, big deficits coincided with recessions--1953-54, 1957-58, 1960, 1969-70, 1973-75, 1980, 1981-82. During a recession companies cut investment in plant and equipment and in inventories, while consumers cut spending on big-ticket items. Hence loan demand from the private sector crumbles. Meanwhile, the Federal Reserve is usually trying to start a recovery by expanding the money supply. With supply of funds up and private demand down, no wonder interest rates fall. Simultaneously, the recession cuts people's and companies' incomes, so the government takes in less tax revenue, causing a deficit. Even after a recovery begins, deficits may swell as the government continues anti-recession spending and implements anti-recession tax cuts. So rising deficits and falling interest rates occur at the same time in a recession and in the aftermath of a recession.

Thus any connection between deficits and interest rates would not be immediate. Some time would elapse between deepening deficits and increasing interest rates if deficits had some effect on pushing rates up. With this time lag in mind, note the trends illustrated in Figure 5. As the ratio of deficits to GNP has moved up over the years, interest rates on average have risen too. That's not proof positive that growing deficits inevitably lead to higher interest rates, but it is suggestive. It suggests that the entire level of rates has shifted

up as government borrowing has assumed an ever greater role in U.S. credit markets. It suggests further that with the new higher level of deficits, the upward shift in rates that has occurred since 1980 will not reverse itself soon.

Moreover, there is now in play an unquantifiable psychological element--financial market participants are well aware that the government will be selling vast amounts of debt for a long time. Given this constant pressure, will investors accept a considerable reduction in yields? Even earlier this year, with loan demand dropping, incomes and profits starting to rise, and inflation way down, a resistance to further rate reductions kept rates much higher than their historical norms. Thus regardless of statistical correlations between deficits and interest rates, fear of future deficits may effectively put a floor under rates at a lofty level.

The upshot is that interest rates--particularly when adjusted for inflation--will remain disturbingly high for at least five more years. The result is that interest rate-sensitive economic sectors will grow less rapidly than underlying demand would indicate, and that overall economic growth will therefore be restrained.

Looking for a Technology Fix

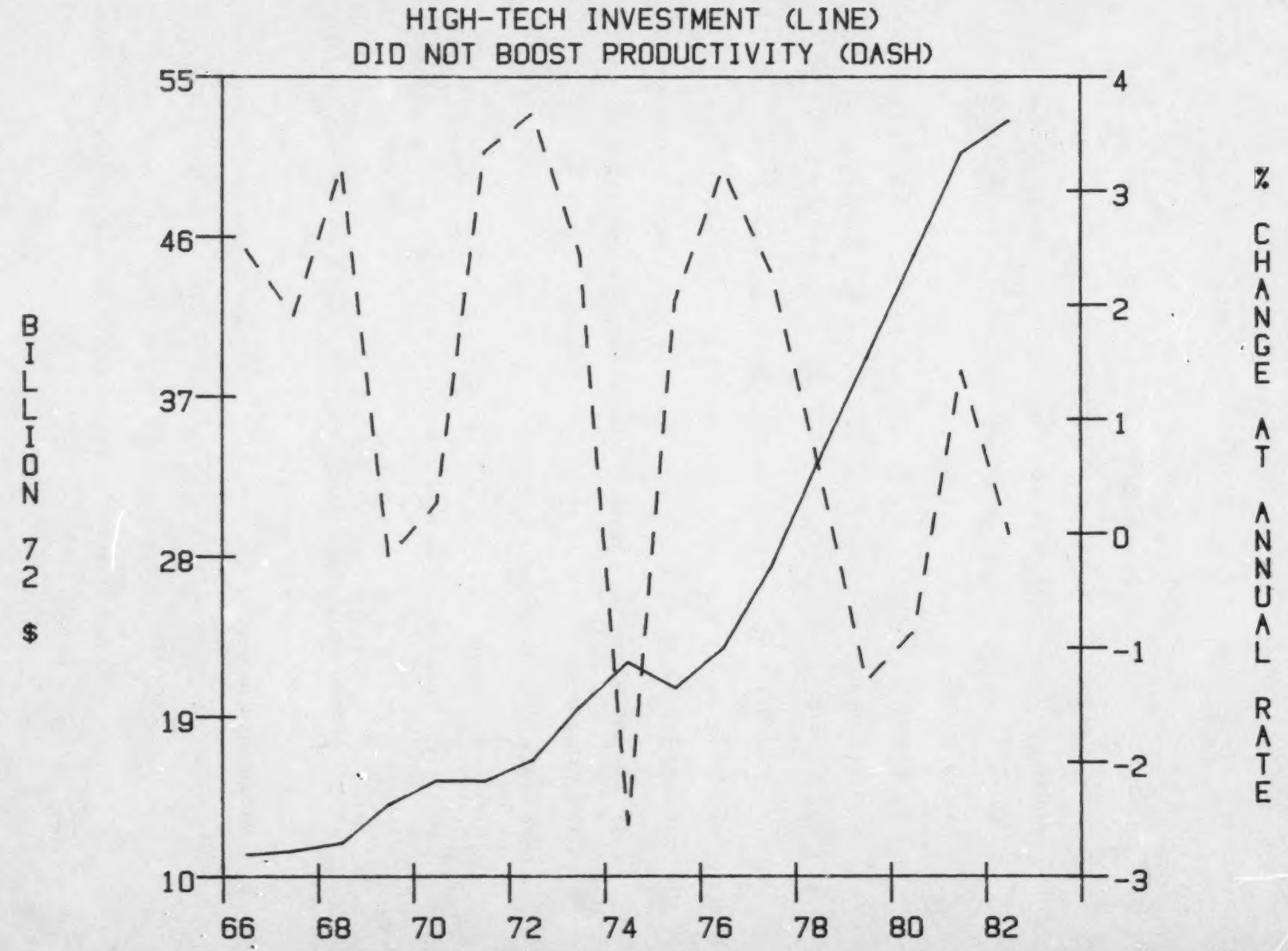
Even if interest rates do stay high for a long time, can't we get a surge of economic growth out of the technological revolution sweeping the U.S.? Computers are moving in everywhere, making people more productive, making equipment more efficient, making management smarter. Communication via satellite is getting swifter. Biotechnology is producing medicines from new sources.

Trying to quantify the impact of such technological advances on productivity and overall economic growth is difficult. But enthusiasm over high-tech should probably be reined in for at least one quantitative reason and one historical reason.

The quantitative reason is illustrated in Figure 6. During the 1970s, inflation-adjusted business investment in computers, communication equipment, and engineering and scientific instruments skyrocketed. Yet during the same period, productivity in the U.S. hit the skids. Investment in computers should not shoulder the blame for the country's productivity problems. But as the graph shows, computers are hardly a panacea for that problem either.

The point is that even sustained rapid spread of the high-tech revolution does not guarantee a return to rapid economic growth. At the same time, given two oil shocks that made much equipment obsolete, given several recessions, and given cutbacks in research and development in the first half of the 1970s, perhaps electronic advances went a long way to preventing an even worse productivity performance last decade. Moreover, the fact that lots of electronic devices were installed in the past ten years didn't mean the equipment was well run. In fact, new sophisticated equipment requiring well-trained operators may initially have caused rather than solved productivity problems. Now, after a decade of experience with electronics, users should have learned by doing, and new entrants to the labor force should be increasingly computer-literate. Hence, though electronics couldn't save the U.S. from a productivity slip in the last decade, prospects for the future are more encouraging.

FIGURE 6



NOTE: Investment is measured on left scale, productivity on right scale.

But, again, enthusiasm should be tempered with a strong sense of historical reality. Think of other technological revolutions in the U.S. past. Before the Civil War, Americans began a revolution in production processes by making interchangeable parts that could be quickly assembled into completed end products. (Rifles are a prime example.) Later in the nineteenth century came--just to name a few--electricity, the telephone, and the phonograph, inventions that led to the creation of large new industries.

Rapid technological change in machine tools, meanwhile, made manufacturing processes more efficient. And advances in chemistry made possible the first plastics.

Early in the twentieth century, development of assembly-line manufacturing and with it mass production of the automobile vastly changed the way America manufactured and consumed goods and services. Without belaboring the obvious, it should be noted that the auto industry gave rise to a whole array of new supplying industries while it created a huge new market for existing industries such as steel, machine tools, and oil. Not least of all, the auto opened up previously isolated areas for residential development.

Quickly flitting through other major technological/ organizational/commercial successes of the twentieth century, any list should include radio, airplanes, television, supermarkets, and department stores. Without detracting from the technological advances that have been coming on line in the past ten years, and that will continue to develop in the next ten, it seems that earlier inventions and innovations were at least as broad, deep, and pervasive as current ones, if not moreso.

Take the period from the Gay Nineties through the Roaring Twenties: From the way society produced goods to the way it distributed and consumed them to the way people traveled, worked, and entertained themselves, economic life was transformed and streamlined by the introduction and development of electricity, autos, radio, and mail-order marketing. Yet even with the dynamic development of new industries based on such inventions and innovations, even with the big boost that developments in manufacturing processes and machinery gave to productivity, output per man-hour grew only about 2% a year on average from 1889 to 1929.

As shown in Chart I, the economy surpassed that earlier performance in the hothouse years following World War II

Chart I. Productivity & Growth Slowed in the 1970s

Period	----Annual Average % Change---- Productivity	Real GNP
1889-1929	2.1%	3.4%
1947-1968	3.2%	3.9%
1968-1973	2.1%	3.5%
1973-1982	0.7%	1.8%

when the U.S. converted from war production to consumer production and from production primarily for home markets to production for world markets. The sterling productivity performance in the 1950s and 1960s demonstrated that not only does rising productivity fire economic growth, but strong and expanding markets in turn promote increasing productivity, a point especially well illustrated by the 1960s. The

1960s' economy also promoted productivity by largely avoiding the cyclical downturns that drag down output-per-hour.

But even a growing economy is not enough to sustain ever-increasing productivity advance--thus from 1968 to 1973 the U.S. economy grew at a brisk 3.5% annual rate, yet productivity growth slowed Then in the 1970s, myriad crises (energy, monetary, food, basic industry, demographic) combined with policy errors to subvert both productivity and economic growth.

In the 1980s, because high interest rates are expected to damp demand, because technological advance is not expected to be more dramatic than in the past one hundred years, and because the U.S. long ago reaped the benefits of expanding (as the dominant producer) into a world market, productivity gains are expected to fall below the 2%-3% range achieved in past periods of prosperity.

At the same time, productivity should improve on the dismal 0.7% annual gains eked out from 1973 to 1982 because:

- Assuming no further oil shocks (see pages 5 to 8 of this report), the economy should be more resistant to recession; companies should not have to cut production due to sudden obsolescence of plant and equipment made cost ineffective by surging energy prices.

- The fast-growing but youthful work force of the 1970s will be older and more experienced, hence more productive, in the 1980s.

- More specifically, the work force should be more adept at handling modern technology in the 1980s than it was in the 1970s when many people fought their first battles against computerese and computer glitches. Since use of today's technology is more knowledge-intensive than earlier technical advances, the phase-in period may take longer until enough people are adequately trained.

- As the U.S. economy stumbled in the 1970s, academics, consultants, and the press became increasingly critical of

U.S. companies' short-term approach to business. Part of that criticism focused on U.S. companies' de-emphasis of research and development (R&D) beginning in the late 1960s, a move that contributed to the slippage in America's technological edge. But since the second half of the 1970s, U.S. companies have been responding to that criticism by beefing up R&D budgets as shown in Figure 7. Even in 1982 when firms were strapped for cash, they still hiked R&D budgets. Although such spending may not produce much technologically and commercially for years to come, the R&D boom launched around 1976 should pay productivity dividends sometime in the 1980s .

Labor's Slowing Pains

All in all, productivity is projected to grow 1.5% a year on average in the next decade. As a look at Chart II will show, such growth is an improvement over recent years but it's not enough to get the U.S. economy back on the high-growth productivity track of the 1950s and 1960s.

Chart II. Slower Labor Growth Doesn't Mean Less Economic Growth

	---------Average Annual % Change-------		
	Hours Worked	Productivity	Output
1950-60	0.4%	2.6%	3.0%
1960-70	1.0	2.8	3.9
1970-80	1.7	1.4	3.1
1980-82	-1.0	1.1	0.1

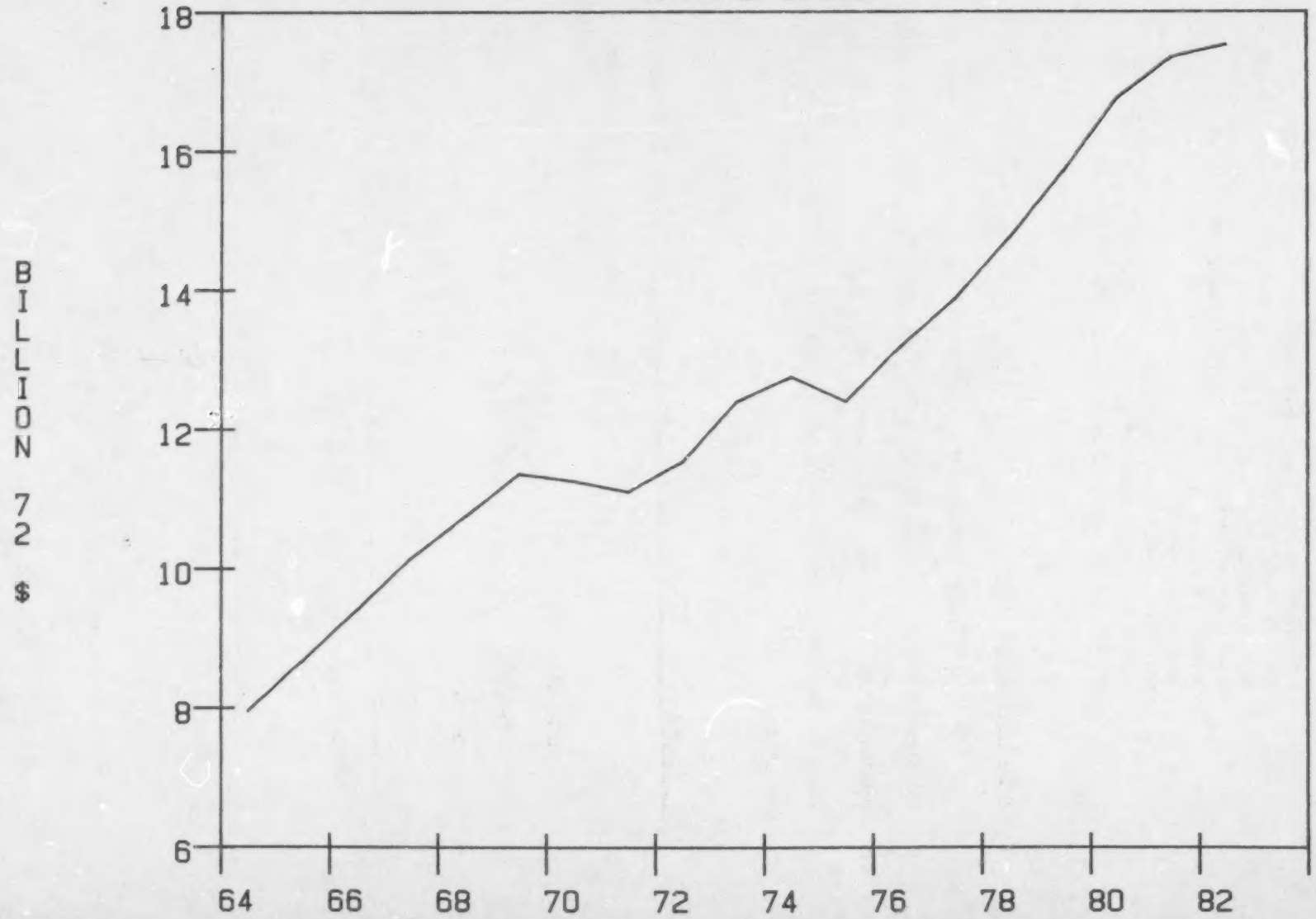
NOTE: Figures are for the business sector of the U.S. economy.

As noted in the introduction, the basic economic growth equation is:

Economic Growth = % Change in Productivity + % Change in Labor

FIGURE 7

REBOUNDING R&D SHOULD HELP ECONOMY
IN THE 1980S



where economic growth is the percent change in inflation-adjusted gross national product. Based on the discussion in the previous section, one-half of the basic equation--the 1.5% change in productivity--has now been established.

Forecasting the other part of the equation is a little easier than forecasting productivity because all of the people who will enter the labor force in the next ten years have already been born and counted by the U.S. Census Bureau. Using the census data, the U.S. Bureau of Labor Statistics (BLS) regularly projects growth in employment and hours based on labor force participation rates by age group and by sex. In contrast to the anticipated improvement in productivity in the 1980s, BLS projects that labor force growth in the coming years will proceed at a slower pace than in the recent past.

Between 1972 and 1982, the labor force grew at an average annual rate of 2.4%, reaching 110.2 million. From 1982 to 1995, BLS data indicate, the labor force will grow less than 2% a year.

Key reason for the sharp slowdown is the baby bust (early 1960s to late 1970s) that followed the baby boom (people born after World War II up to the early sixties). In the 1970s, the baby boomers swelled the ranks of labor; but in the next ten years, fewer people will be reaching the 16-24-year-old age bracket. Thus, even assuming that more people per age category opt to join the work force, the total supply of labor in the next decade will grow more slowly than in the 1970s.

Likewise, the number of work hours available to the economy will also slow down. From 1970 to 1980, the number of hours worked in business establishments grew 1.9% annually on average. From 1980 to 1995, based on BLS data, the figure is estimated at 1.5%. In the short term the labor force,

employment, and number of hours worked should grow faster than this average due to a cyclical spurt as the economy recovers from the 1981-82 recession.

Investment Will Improve Economy's Efficiency

Although increasing numbers of workers will not boost economic growth in the '80s as much as in the '70s, slower labor force growth is not necessarily a bad thing. Chart II shows that though hours worked crept along very slowly in the 1950s, productivity moved out smartly, thus producing solid economic growth. Chart II also shows that rapid labor force growth does not guarantee rapid economic growth. In the 1970s, the number of hours worked in the U.S. spurted while output growth dragged relative to the 1960s.

A primary cause for disappointing growth in the '70s, considering the surge in work effort, was a fall in the amount of plant and equipment each worker had on hand. That decline is illustrated in Figure 8 by the dip in the ratio of net capital stock per employed civilian. Yet the fall in the capital-labor ratio should not be taken as a sign that U.S. business was disinvesting. Inflation-adjusted capital spending rose at a very respectable 3.9% annual average rate in the 1970s. It's just that investment in the '70s did not accelerate as much as employment did.

But given the way prices were moving, it's no surprise that the capital-labor ratio dipped. For rapid labor force growth was damping wage increases while capital goods prices were zipping along. Which meant that companies seeking to keep costs down figured it was cheaper to hire people than to buy machines. The numbers behind these decisions are shown in Chart III.

Of late, however, capital goods prices have moderated significantly, and will probably stay down for some time. Moreover, as the decade progresses

FIGURE 8

LABOR FORCE GREW FASTER THAN INVESTMENT
IN LATE 1970S

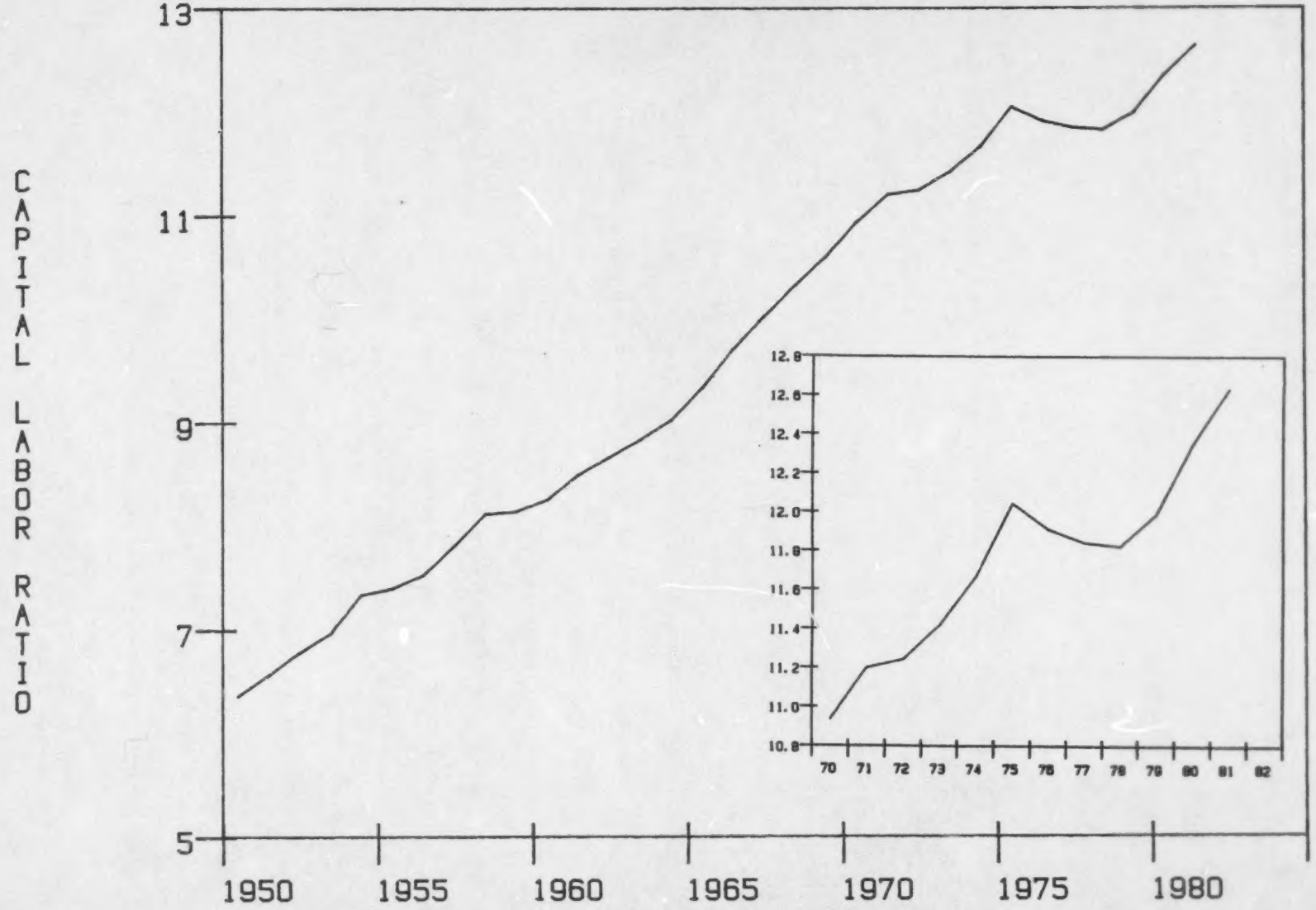


Chart III. Labor Was a Bargain Last Decade

	Average Annual % Change	
	Hourly Compensation*	Capital Goods Prices**
1950-60	3.2%	3.5%
1960-70	2.7%	2.0%
1970-80	0.6%	7.9%
1980-82	0.2%	8.0%

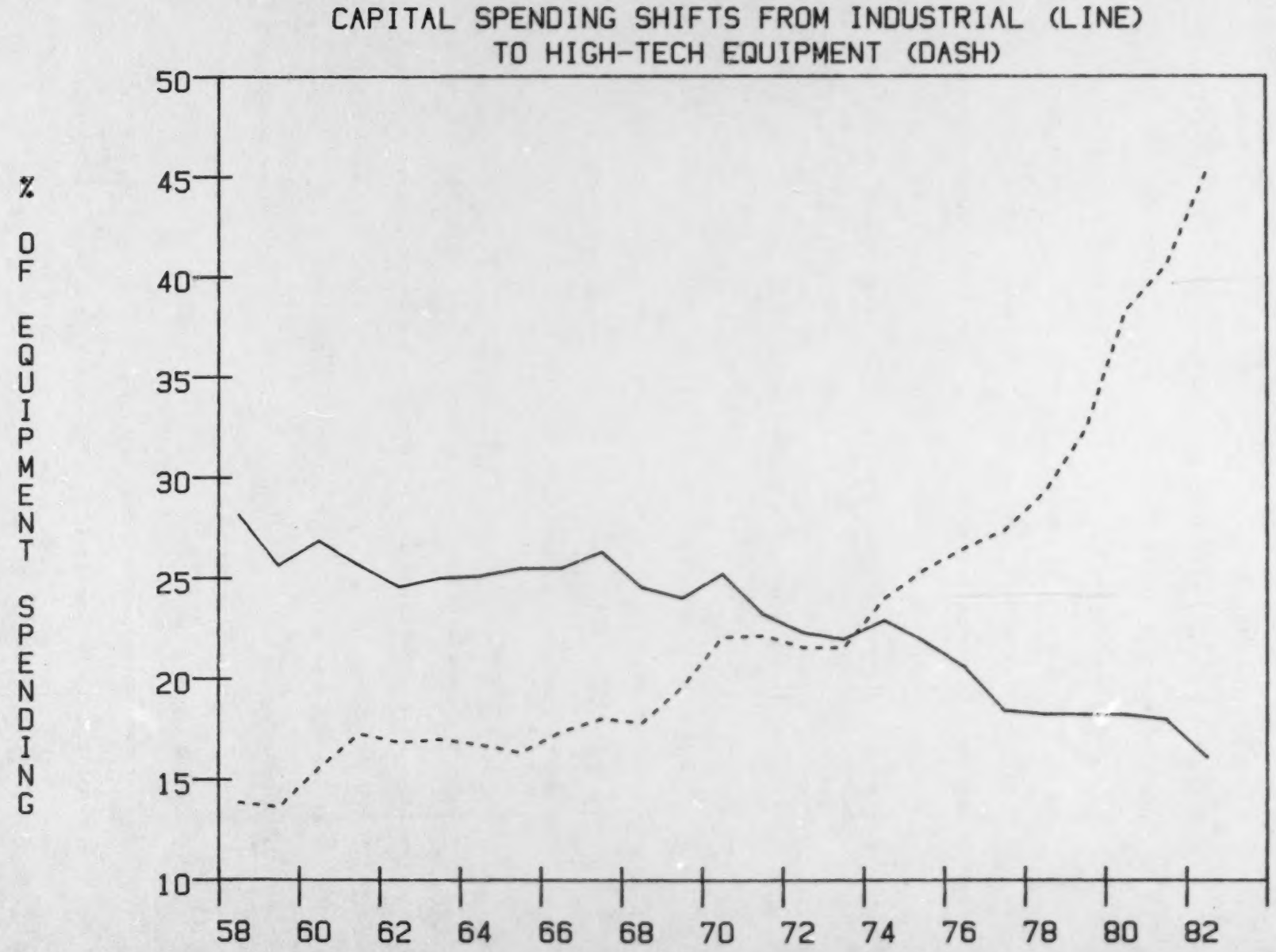
*Adjusted for inflation.
**Producer price index for finished producer goods.

and the number of new entrants to the labor force slows, wages will probably begin to pick up. Hence, in contrast to the 1970s, business will be spurred to invest more rapidly in plant and equipment in order to cut unit costs. The capital-labor ratio should therefore turn around in the 1980s--another reason to expect productivity to recover from its dismal performance of recent years.

While the amount of plant and equipment per worker is expected to grow at a healthy pace in the 1980s, the mix of that plant and equipment will be much different than in the past. The shift is from industrial to high-tech,* a trend that took off dramatically in the mid-1970s. See Figure 9, which in a nutshell points to the signifacant structural change the U.S. in going through--from an economy rooted in heavy manufacturing to one driven by information, communications, services, and light manufacturing.

*High-tech capital equipment includes office and store equipment such as computers and word processors, communication equipment, and instruments.

FIGURE 9


CAPITAL SPENDING SHIFTS FROM INDUSTRIAL (LINE)
TO HIGH-TECH EQUIPMENT (DASH)
% OF EQUIPMENT SPENDING
50
45
40
35
30
25
20
15
10
58
60
62
64
66
68
70
72
74
76
78
80
82

Another way to visualize this change is to look at the mix of construction in the U.S., as shown in Figure 10. In the 1970s, companies obviously felt that money spent on commercial operations promised a better return than money spent on factories.

The forecast assumes these capital investment trends will persist, though at a far slower rate than in the past few years.

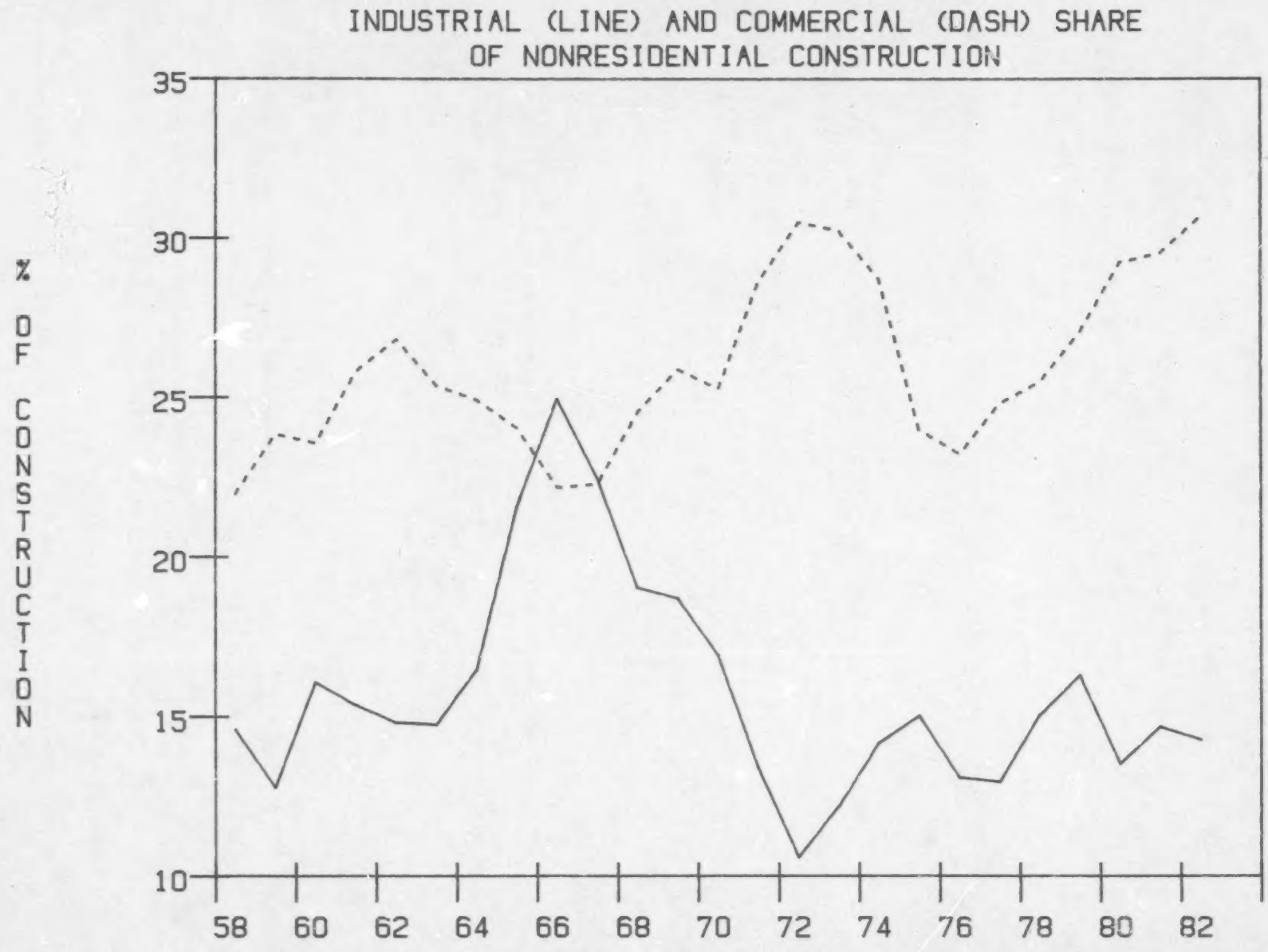
On the equipment side of capital investment, the trend is projected to continue because firms are expected to concentrate more on raising productivity and cutting costs than on expanding capacity. In the immediate future, the incentive to cut costs rather than expand is readily apparent: 1) Companies have plenty of capacity on hand. 2) Given the disinflationary environment, increased profits will come not from hiking prices but from lowering costs.

Lowering costs means raising productivity which means making labor more efficient by outfitting it with more and better equipment. Hence computers and computer-controlled process equipment will reap the benefit; standard equipment will suffer.

In the longer run, as argued in the previous section, wages will begin to rise faster than capital goods prices due to the slowdown in labor force growth. Meanwhile, with the economy suffering from high interest rates, sluggish growth will remain a threat. Hence managers are expected to maintain a focus on productivity and costs, rather than on capacity expansion. Modest inflation will also prevent companies from quickly raising prices, so once again the emphasis will be on keeping costs down.

Cost-cutting must become the order of the day, too, if U.S. companies are to compete in foreign markets and fend off import

FIGURE 10


INDUSTRIAL (LINE) AND COMMERCIAL (DASH) SHARE
OF NONRESIDENTIAL CONSTRUCTION
% OF CONSTRUCTION
35
30
25
20
15
10
58
60
62
64
66
68
70
72
74
76
78
80
82

penetration. For relatively high interest rates at home will keep the dollar strong abroad, thus making it necessary to keep production costs under wraps.

Why the trend toward high-tech and away from industrial equipment is expected to taper off is based on the supposition that the De-Industrial Revolution will not run on to the point where Americans spend all their workdays sending each other information on-line. More seriously:

- Given this country's natural resources, certain U.S. manufacturing industries enjoy a sizeable comparative advantage over other countries. Examples are chemicals, paper, plastics, food processing, and coal mining.
- Given this country's technical resources, certain U.S. manufacturing industries such as electrical machinery, machinery, and aircraft enjoy a comparative advantage.
- Given the size of the U.S. market, certain U.S. manufacturing industries enjoy an economies of scale advantage, the prime example being autos.
- Given renewed attention to research and development and to productivity, U.S. manufacturing is expected to slow the decline in its competitive position overseas. Because low-wage, industrializing countries like South Korea and Taiwan will be able to produce lower-cost products than U.S. companies, some U.S. industries will continue to suffer market erosion. Nonetheless, the U.S. position in the '80s should not deteriorate as much as in the '70s.

In other words, basic U.S. industries--though not about to resume the prominent position they held twenty years ago--are not about to roll over and play dead either.

On the construction side of capital investment, the story is similar. Because cost-cutting rather than expansion will be executives' number one priority, factory construction will remain weak. Modernization of existing plants will likely be important in the

next decade, however, and that will help maintain the level of spending on factories.

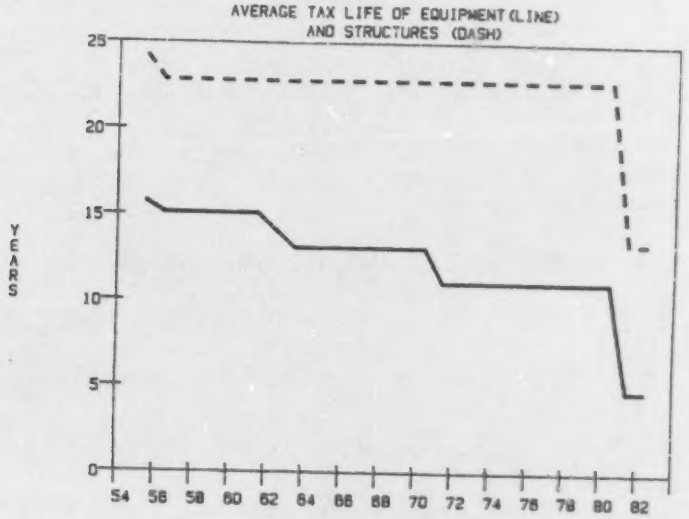
The commercial construction boom of recent years, meanwhile, should slow, primarily because the office market has been overbuilt. In fact, not until the latter 1980s is office building expected to again attain the level of the early '80s.

All in all, capital investment in the next decade is expected to be a key contributor to productivity--hence economic--growth. Because of rising wages, keen foreign competition, and modest inflation, companies will focus in coming years on keeping costs down to keep market share up. To accomplish that goal, companies will have to boost productivity by modernizing their stock of plant and equipment.

Companies will also be spurred to invest by the 1981 Tax Act, which provided major incentives to buy plant and equipment, mainly by shortening depreciation lives. (See Figure 11.) Even as modified by the 1982 Tax Act, current law is definitely pro-investment. Problem with the law was, deep recession followed its passage. Negative

FIGURE 11

AVERAGE TAX LIFE OF EQUIPMENT (LINE) AND STRUCTURES (DASH)



incentive from the recession thus more than offset positive incentive from the new law, and investment fell.

With recovery now in train, the tax law should begin to stimulate investment. Emphasis on investment in the rest of the 1980s is thus forecast to raise productivity from the dismal rates of the late 1970s and early 1980s.

But there does remain an obstacle to investment--high interest rates.

High rates not only make financing of capital projects costly, they also weaken demand, reducing the need for investment in the first place. Thus while investment is forecast to grow faster than the economy as a whole, a boom in capital spending does not appear on the horizon.

The Forecasts in Brief

Because of interest-rate-constrained demand, productivity may not advance as quickly as the 1.5% a year suggested earlier in the report. And work hours may not grow as quickly as the 1.5% annual rate suggested by the Bureau of Labor Statistics. Thus the mid-range growth forecast of this report for 1981-95 is not 3% a year (1.5% productivity growth plus 1.5% labor growth), but less--2.8%. (The year 1981 is chosen as the starting point because real GNP in both 1980 and 1982 fell, and long-term growth rates should be measured from a "normal" year.)

The basic assumptions behind this "Interest-Rate Constrained" forecast, those argued for in this report, are summarized in Chart IV. All of these assumptions are naturally subject to much uncertainty.

Chart IV. Key Assumptions Behind Mid-Range Forecast

Assumptions	Impact on Growth in 1980s vs. the 1970s
Oil prices rise modestly faster than prices in general	positive
Inflation remains modest, 6%-7%	positive
Interest rates stay high	negative
Labor force growth slows	negative
Research & development is robust	positive
Capital investment lifts productivity	positive
Technology advances at historical rate	no change
Exports hurt by strong dollar	negative

For example, a Mideast crisis could cause another surge in oil prices, hence in inflation and interest rates. In that case sluggish growth would curtail capital investment, which in turn would whack productivity.

Or federal budget deficits could continue to grow to truly outlandish proportions, pushing interest rates to the 20% range for a sustained period. Employment, capital spending, and productivity would then suffer significantly.

Thus the low-ball "Interest-Rate Crunch" forecast at the back of this report depicts a path of 2% growth from 1981 to 1995.

By contrast, the government could conceivably clean up its fiscal act, by cutting outlays (especially in military and health-care

budgets) and raising taxes that least affect incentives to produce (an oil-import fee, for example). Lower interest rates would ensue, providing further inducement for firms to invest in plant and equipment. Productivity and competitiveness would improve beyond the mid-range forecast. These in turn would stimulate further growth, which in combination with pro-investment tax laws would kick off a further escalation in capital spending. This "Investment Surge" scenario calls for economic growth of 3.4% a year from 1981-95, with investment after inflation spurting 4.5% annually.

The mid-range forecast is considered most likely.

All of the forecasts are summarized in Chart V and compared to history. The forecasts do not stack up too well against the past

Chart V. The Forecasts Compared With History

	--------Average Annual Real % Change------			
History	GNP	Consumer Spending	Business Fixed Investment	Prices
1950-60	3.3%	3.0%	3.0%	2.5%
1960-70	3.9	4.0	5.5	2.9
1970-80	3.1	3.3	3.8	6.9
1980-82	0.4	2.0	0.1	7.7
Forecasts, 1981-95				
Interest-Rate Crunch	2.0	2.2	2.5	6.0
Interest-Rate Constraint	2.8	3.0	3.3	6.1
Investment Surge	3.4	3.6	4.5	6.1

primarily because interest rates are expected to remain unusually high until the federal government gets its budget under some semblance of control.

Besides limiting overall growth, high interest rates in these forecasts also keep housing starts below levels where they "should" be, given the number of people entering prime homebuying age groups in the next decade. Additionally, high interest rates will keep the dollar buoyant, thus hurting exports. High rates will also put companies under pressure to keep inventories lean. Hence GNP components not forecast separately--residential investment, net exports, and inventory change--gradually become a smaller share of total output. Conversely, consumer spending and business fixed investment grow faster than GNP.

The key policy variable that could most alter the mid-range forecast is the federal deficit. If the recovery does, in fact, slash the deficit, then interest rates would fall and the "Investment Surge" scenario could roll forward. If, on the other hand, the U.S. becomes mired in a war and the military budget explodes further, growing deficits could push the economy onto the "Interest-Rate Crunch" path.

The assumption here is that little happens with the deficit in the next few years. Hence by historical standards interest rates remain high and growth sub-par. But long-term budget projections, like long-term economic forecasts, are not written in stone. So there is still hope that as the threat posed by the deficit becomes more apparent to politicians, improvements will follow. If not, the outlook could become gloomy indeed.

"INTEREST-RATE CRUNCH" FORECAST

History	Billions of Dollars: Gross National Product	Billions of Dollars: Personal Consumption Expenditures	Billions of Dollars: Nonresidential Fixed Investment	Billions of 1972 Dollars: Gross National Product	Billions of 1972 Dollars: Personal Consumption Expenditures	Billions of 1972 Dollars: Nonresidential Fixed Investment	Inflation (GNP Deflator, 1972=100)
1950	286.5	192.0	27.3	534.8	337.3	50.0	53.56
1960	506.5	324.9	48.5	737.2	452.0	66.9	68.70
1970	992.7	621.7	103.9	1085.6	672.1	113.8	91.45
1971	1077.6	672.2	107.9	1122.4	696.8	112.2	96.01
1972	1185.9	737.1	121.0	1185.9	737.1	121.0	100.00
1973	1326.4	812.0	143.3	1255.0	768.5	138.1	105.69
1974	1434.2	888.1	156.6	1248.0	763.6	135.7	114.92
1975	1549.2	976.4	157.7	1233.9	780.2	119.3	125.56
1976	1718.0	1084.3	174.1	1300.4	823.7	125.6	132.11
1977	1918.3	1204.4	205.2	1369.7	864.3	140.3	140.05
1978	2163.9	1346.5	248.9	1438.6	903.2	158.3	150.42
1979	2417.8	1507.2	290.2	1479.4	927.6	169.9	163.42
1980	2631.7	1668.1	308.8	1475.0	931.8	165.8	178.42
1981	2954.1	1857.2	352.2	1513.8	956.8	174.4	195.14
1982	3073.0	1991.9	348.3	1485.4	970.2	166.1	206.88
Projections							
1983	3290	2149	338	1522	1002	164	216.19
1984	3518	2292	352	1535	1008	168	229.16
1985	3707	2445	361	1512	1005	164	245.20
1986	4084	2680	383	1542	1020	164	264.82
1987	4435	2896	438	1580	1040	174	280.71
1988	4791	3130	515	1610	1060	191	297.55
1989	5164	3374	591	1645	1083	205	313.92
1990	5600	3658	667	1691	1113	217	331.18
1995	8819	5673	1012	1990	1290	246	443.19

SOURCES: U.S. Department of Commerce, McGraw-Hill Economics

NOTE: Data include Commerce Dept.'s July, 1983 revisions of gross national product for 1980-82.

"INTEREST-RATE CRUNCH" FORECAST

History	Industrial Production (Index, 1967=100)	Population (Millions)	Households (Millions)	Housing Starts* (Millions)	Civilian Employment (Millions)
1950	44.9	152.3	43.6	1.908	58.9
1960	66.2	180.7	52.8	1.252	65.8
1970	107.8	205.1	63.4	1.434	78.7
1971	109.6	207.7	64.8	2.052	79.4
1972	119.7	209.9	66.7	2.357	82.2
1973	129.8	211.9	68.3	2.045	85.1
1974	129.3	213.9	69.9	1.338	86.8
1975	117.8	216.0	71.1	1.160	85.8
1976	130.5	218.0	72.9	1.538	88.8
1977	138.2	220.2	74.1	1.987	92.0
1978	146.1	222.6	76.0	2.020	96.0
1979	152.5	225.1	77.3	1.745	98.8
1980	147.0	227.7	80.8	1.304	99.3
1981	151.0	229.8	82.4	1.084	100.4
1982	138.6	232.0	83.5	1.062	99.5
Projections					
1983	144	234.2	85.1	1.5	100.0
1984	145	236.4	86.2	1.3	101.0
1985	133	238.7	87.0	1.0	100.0
1986	135	240.9	88.5	1.6	102.0
1987	140	243.2	90.5	1.8	103.5
1988	146	245.4	92.0	1.7	105.0
1989	150	247.6	93.5	1.6	107.0
1990	157	249.7	95.0	1.6	108.5
1995	205	259.6	102.0	1.6	118.0

SOURCES: U.S. Census Bureau, U.S. Department of Commerce, Bureau of Labor Statistics, Federal Reserve Board, McGraw-Hill Economics

*Excludes mobile home shipments

"INTEREST-RATE CONSTRAINT" FORECAST

History	Billions of Dollars: Gross National Product	Billions of Dollars: Personal Consumption Expenditures	Billions of Dollars: Nonresidential Fixed Investment	Billions of 1972 Dollars: Gross National Product	Billions of 1972 Dollars: Personal Consumption Expenditures	Billions of 1972 Dollars: Nonresidential Fixed Investment	Inflation (GNP Deflator, 1972=100)
1950	286.5	192.0	27.3	534.8	337.3	50.0	53.56
1960	506.5	324.9	48.5	737.2	452.0	66.9	68.70
1970	992.7	621.7	103.9	1085.6	672.1	113.8	91.45
1971	1077.6	672.2	107.9	1122.4	696.8	112.2	96.01
1972	1185.9	737.1	121.0	1185.9	737.1	121.0	100.00
1973	1326.4	812.0	143.3	1255.0	768.5	138.1	105.69
1974	1434.2	888.1	156.6	1248.0	763.6	135.7	114.92
1975	1549.2	976.4	157.7	1233.9	780.2	119.3	125.56
1976	1718.0	1084.3	174.1	1300.4	823.7	125.6	132.11
1977	1918.3	1204.4	205.2	1369.7	864.3	140.3	140.05
1978	2163.9	1346.5	248.9	1438.6	903.2	158.3	150.42
1979	2417.8	1507.2	290.2	1479.4	927.6	169.9	163.42
1980	2631.7	1668.1	308.8	1475.0	931.8	165.8	178.42
1981	2954.1	1857.2	352.2	1513.8	956.8	174.4	195.14
1982	3073.0	1991.9	348.3	1485.4	970.2	166.1	206.88
Projections							
1983	3314	2165	338	1530	1007	164	216.60
1984	3637	2350	361	1599	1049	172	227.43
1985	4021	2588	414	1676	1087	187	239.94
1986	4390	2824	455	1726	1119	194	254.34
1987	4803	3085	504	1778	1151	202	270.11
1988	5257	3376	558	1831	1185	210	287.13
1989	5767	3700	617	1886	1219	218	305.79
1990	6321	4056	682	1941	1255	226	325.67
1995	9941	6412	1136	2228	1448	275	446.20

SOURCES: U.S. Department of Commerce, McGraw-Hill Economics

NOTE: Data include Commerce Dept.'s July, 1983 revisions of gross national product for 1980-82.

"INTEREST-RATE CONSTRAINT" FORECAST

History	Industrial Production (Index, 1967=100)	Millions			
		Population	Households	Housing Starts*	Civilian Employment
1950	44.9	152.3	43.6	1.908	58.9
1960	66.2	180.7	52.8	1.252	65.8
1970	107.8	205.1	63.4	1.434	78.7
1971	109.6	207.7	64.8	2.052	79.4
1972	119.7	209.9	66.7	2.357	82.2
1973	129.8	211.9	68.3	2.045	85.1
1974	129.3	213.9	69.9	1.338	86.8
1975	117.8	216.0	71.1	1.160	85.8
1976	130.5	218.0	72.9	1.538	88.8
1977	138.2	220.2	74.1	1.987	92.0
1978	146.1	222.6	76.0	2.020	96.0
1979	152.5	225.1	77.3	1.745	98.8
1980	147.0	227.7	80.8	1.292	99.3
1981	151.0	229.8	82.4	1.084	100.4
1982	138.6	232.0	83.5	1.062	99.5
Projections					
1983	145	234.2	85.2	1.6	100.5
1984	155	236.4	86.8	1.5	103.5
1985	165	238.7	88.4	1.6	107.0
1986	175	240.9	89.9	1.8	109.0
1987	180	243.2	91.5	1.8	110.7
1988	186	245.4	93.0	1.7	112.4
1989	191	247.6	94.6	1.7	114.2
1990	197	249.7	96.1	1.6	116.0
1995	230	259.6	103.1	1.6	124.0

SOURCES: U.S. Census Bureau, U.S. Department of Commerce, Bureau of Labor Statistics, Federal Reserve Board, McGraw-Hill Economics

*Excludes mobile home shipments

"INVESTMENT SURGE" FORECAST

History	Billions of Dollars: Gross National Product	Billions of Dollars: Personal Consumption Expenditures	Billions of Dollars: Nonresidential Fixed Investment	Billions of 1972 Dollars: Gross National Product	Billions of 1972 Dollars: Personal Consumption Expenditures	Billions of 1972 Dollars: Nonresidential Fixed Investment	Inflation (GNP Deflator, 1972=100)
1950	286.5	192.0	27.3	534.8	337.3	50.0	53.56
1960	506.5	324.9	48.5	737.2	452.0	66.9	68.70
1970	992.7	621.7	103.9	1085.6	672.1	113.8	91.45
1971	1077.6	672.2	107.9	1122.4	696.8	112.2	96.01
1972	1185.9	737.1	121.0	1185.9	737.1	121.0	100.00
1973	1326.4	812.0	143.3	1255.0	768.5	138.1	105.69
1974	1434.2	888.1	156.6	1248.0	763.6	135.7	114.92
1975	1549.2	976.4	157.7	1233.9	780.2	119.3	125.56
1976	1718.0	1084.3	174.1	1300.4	823.7	125.6	132.11
1977	1918.3	1204.4	205.2	1369.7	864.3	140.3	140.05
1978	2163.9	1346.5	248.9	1438.6	903.2	158.3	150.42
1979	2417.8	1507.2	290.2	1479.4	927.6	169.9	163.42
1980	2631.7	1668.1	308.8	1475.0	931.8	165.8	178.42
1981	2954.1	1857.2	352.2	1513.8	956.8	174.4	195.14
1982	3073.0	1991.9	348.3	1485.4	970.2	166.1	206.88
Projections							
1983	3341	2182	344	1541	1014	167	216.81
1984	3721	2402	376	1630	1060	179	228.30
1985	4147	2632	446	1720	1100	200	241.09
1986	4650	2905	515	1811	1140	216	256.76
1987	5111	3222	576	1869	1187	227	273.44
1988	5591	3579	640	1929	1244	238	289.85
1989	6085	3925	713	1990	1293	250	305.79
1990	6595	4254	812	2054	1335	262	325.67
1995	9905	6390	1278	2417	1571	323	446.20

SOURCES: U.S. Department of Commerce, McGraw-Hill Economics

NOTE: Data include Commerce Dept.'s July, 1983 revisions of gross national product for 1980-82.

"INVESTMENT SURGE" FORECAST

History	Industrial Production (Index, 1967=100)	Population (Millions)	Households (Millions)	Housing Starts* (Millions)	Civilian Employment (Millions)
1950	44.9	152.3	43.6	1.908	58.9
1960	66.2	180.7	52.8	1.252	65.8
1970	107.8	205.1	63.4	1.434	78.7
1971	109.6	207.7	64.8	2.052	79.4
1972	119.7	209.9	66.7	2.357	82.2
1973	129.8	211.9	68.3	2.045	85.1
1974	129.3	213.9	69.9	1.338	86.8
1975	117.8	216.0	71.1	1.160	85.8
1976	130.5	218.0	72.9	1.538	88.8
1977	138.2	220.2	74.1	1.987	92.0
1978	146.1	222.6	76.0	2.020	96.0
1979	152.5	225.1	77.3	1.745	98.8
1980	147.0	227.7	80.8	1.292	99.3
1981	151.0	229.8	82.4	1.084	100.4
1982	138.6	232.0	83.5	1.062	99.5
Projections					
1983	147	234.2	85.2	1.6	100.8
1984	160	236.4	87.2	1.8	104.0
1985	171	238.7	89.2	2.0	107.5
1986	183	240.9	91.0	2.1	109.5
1987	189	243.2	92.8	1.9	111.5
1988	196	245.4	94.3	1.8	113.0
1989	203	247.6	95.8	1.7	115.0
1990	210	249.7	97.3	1.7	117.0
1995	248	259.6	104.3	1.6	125.0

SOURCES: U.S. Census Bureau, U.S. Department of Commerce, Bureau of Labor Statistics, Federal Reserve Board, McGraw-Hill Economics

*Excludes mobile home shipments